

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A reproducing apparatus for reproducing data [[to be]] stored [[in]] to a data storage medium, ~~characterized by including~~ comprising:

synchronization pattern detecting means for detecting a synchronization pattern ~~which is detected~~ from a reproduced signal [[from]] of the [[data]] storage medium ~~and which is contained in the data~~;

error detecting means for detecting an error between the reproduced signal and a reference point specified by a time at which a half cycle has elapsed from a start time of one cycle of a clock signal reproduced from the reproduced signal, and by an amplitude of the reproduced signal; and

correcting means for correcting a deviation of the data from the clock signal, on the basis of a difference between an interval of the synchronization pattern detected and a predetermined period, and of a time for a segment ~~in which it is assumed~~, [[from]] based upon the error detected, to identify that the deviation of the data from the clock signal has occurred, out of segments into which the interval of the synchronization pattern is divided.

Claim 2 (Currently Amended): The reproducing apparatus according to Claim 1, ~~characterized in that~~ wherein the synchronization pattern detecting means ~~includes~~ further comprises:

detection range setting means for setting a detection range from which the synchronization pattern is detected, on the basis of a count value of the clock signal; and

synchronization pattern detection signal inserting means for inserting a signal representing detection of the synchronization pattern, at a time specified by the period

predetermined, where the synchronization pattern has not been detected within the detection range.

Claim 3 (Currently Amended): The reproducing apparatus according to Claim 1, ~~characterized in that:~~ wherein the error detecting means detects a phase error, which is an error in a time direction between the reference point and the reproduced signal, and the correcting means corrects the deviation of the data from the clock signal, on the basis of the difference between the interval of the synchronization pattern detected and the period predetermined, and of the time for the segment ~~in which it is assumed, [[from]]~~ based upon the phase error detected, to identify that the deviation of the data from the clock signal has occurred, out of the segments into which the interval of the synchronization pattern is divided.

Claim 4 (Currently Amended): The reproducing apparatus according to Claim 1, ~~characterized in that:~~ wherein the error detecting means detects a zero-crossing offset, which is an error in an amplitude direction between the reference point and the reproduced signal, and the correcting means corrects the deviation of the data from the clock signal, on the basis of the difference between the interval of the synchronization pattern detected and the period predetermined, and of the time for the segment ~~in which it is assumed, [[from]]~~ based upon the zero-crossing offset detected, that the deviation of the data from the clock signal has occurred, out of the segments into which the interval of the synchronization pattern is divided.

Claim 5 (Currently Amended): The reproducing apparatus according to Claim 1, ~~characterized in that:~~ wherein the correcting means ~~includes~~ further comprises:

deviation amount detecting means for detecting the difference between the interval of the synchronization pattern and the period predetermined, on the basis of the clock signal, as a deviation amount;

error integrating means for integrating the error for each of the segments;

deviation occurrence time detecting means for detecting a deviation occurrence time, which is a time for the segment in which an absolute value of the integrated value integrated becomes maximum between two successive ones of the synchronization patterns;

a FIFO (First In First Out) buffer for storing the data of a period longer than the period predetermined; and

control means for controlling the FIFO buffer such that the data of a period from the deviation occurrence time to detection of the synchronization pattern is moved in a time direction so as to correspond to the deviation amount, on the basis of the deviation amount and the deviation occurrence time, in a case where the deviation amount other than 0 has been detected.

Claim 6 (Currently Amended): A reproducing method for reproducing data [[to be]] stored in a data storage medium, ~~characterized by including~~ comprising:

~~a synchronization pattern detecting step of detecting a synchronization pattern which is detected from a reproduced signal [[from]] of the [[data]] storage medium and which is contained in the data;~~

~~an error detecting step of detecting an error between the reproduced signal and a reference point specified by a time at which a half cycle has elapsed from a start time of one cycle of a clock signal reproduced from the reproduced signal, and by an amplitude of the reproduced signal; and~~

~~a correcting step of~~ correcting a deviation of the data from the clock signal, on the basis of a difference between an interval of the synchronization pattern detected and a predetermined period, and of a time for a segment ~~in which it is assumed~~, [[from]] based upon the error detected, to identify that the deviation of the data from the clock signal has occurred, out of segments into which the interval of the synchronization pattern is divided.

Claim 7 (Canceled).

Claim 8 (Currently Amended): A ~~program for causing~~ computer readable storage medium encoded with computer program instructions that cause a computer to perform a ~~process method~~ by which data ~~[[to be]] stored to~~ [[in]] a data storage medium is reproduced for reproduction, the ~~program characterized by including~~ method comprising:

~~a synchronization pattern detecting step of~~ detecting a synchronization pattern which is detected from a reproduced signal from the data storage medium and which is contained in the data;

~~an error detecting step of~~ detecting an error between the reproduced signal and a reference point specified by a time at which a half cycle has elapsed from a start time of one cycle of a clock signal reproduced from the reproduced signal, and by an amplitude of the reproduced signal; and

~~a correcting step of~~ correcting a deviation of the data from the clock signal, on the basis of a difference between an interval of the synchronization pattern detected and a predetermined period, and of a time for a segment ~~in which it is assumed~~, [[from]] based upon the error detected, to identify that the deviation of the data from the clock signal has occurred, out of segments into which the interval of the synchronization pattern is divided.